

ARIZONA DEPARTMENT OF HEALTH SERVICES
BUREAU OF EMERGENCY MEDICAL SERVICES AND TRAUMA SYSTEM



COUNTY TRAUMA REPORTS:
MARICOPA COUNTY
ASTR 2012

Prepared by:
Maureen Brophy, MPH
Vatsal Chikani, MPH
Rogelio Martinez, MPH

Data and Quality Assurance

Purpose:

The purpose of this report is to describe the incidence of trauma in your county using the Arizona State Trauma Registry (ASTR). This information can develop and strengthen injury prevention programs at the county level.

Methods:

In 2012, the Arizona State Trauma Registry (ASTR) received data from 31 state-designated trauma centers. Three additional healthcare institutions participated in the registry but were not designated. The Arizona trauma system had eight Level I trauma centers - six were located in the central county of Maricopa with 60 percent of the state's population; the remaining two Level I trauma centers were located in the northern-most county of Coconino and the southern county of Pima. For the 2012 reporting year, there were twenty designated Level IV and three Level III trauma centers dispersed primarily in the rural areas of the state. There are a total of 32,602 records in the ASTR for 2012.

Limitations:

Data is limited to participating hospitals in the state. Information on patients that were treated at out of state and non-participating hospitals will be missed. Injuries included in this registry are those which fit the ASTR inclusion criteria (Appendix 1). As such, injuries reported are reflective of severe injuries, and may not be a complete picture of injury in your county.

Geo-Population:

Arizona is 400 miles long and 310 miles wide for a total area of 114,006 square miles. The topography of the state is 364 square miles of water and a blend of deserts, mountains, and plateaus. Arizona shares contiguous borders with the states of California, Colorado, Nevada, New Mexico, and Utah. Internationally, the Mexican states of Sonora, Chihuahua, and Baja California Norte share a border with Arizona.

The total reported population in 2012 was 6,498,570; this was up from the 2011 reported number of 6,438,178 residents.¹ In 2012, 84.2 percent of the population lived in urban counties (Maricopa, Pima, Pinal, and Yuma). The remaining counties (Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Mohave, Navajo, Santa Cruz, and Yavapai) were home to 15.8 percent of the population.

Additionally, Arizona has within its borders twenty-two (22) federally recognized American Indian tribes, comprising a 2012 collective population of 305,029.

¹ <http://www.azdhs.gov/plan/menu/info/pop/index.php?pg=2012>

Health Care Institution	Address	Effective Date	Expiration Date
Level I Trauma Centers			
Banner Good Samaritan Medical Center	925 E. McDowell Rd., Phoenix, AZ 85006	11/19/11	11/19/14
Dignity Health, dba Chandler Regional Medical Center (Provisional Designation)	1955 W. Frye Rd., Chandler, AZ 85224	3/24/14	9/24/15
Flagstaff Medical Center	1200 N. Beaver St., Flagstaff, AZ 86001	05/27/14	05/27/17
John C. Lincoln - North Mountain	250 E. Dunlap Ave., Phoenix, AZ 85020	04/24/14	04/24/15
Maricopa Medical Center	2601 E. Roosevelt, Phoenix, AZ 85008	12/20/11	12/20/14
Phoenix Children's Hospital	1919 E. Thomas Rd., Phoenix, AZ 85016	08/31/12	08/31/15
St. Joseph's Hospital & Medical Center	350 W. Thomas Rd., Phoenix, AZ 85013	11/20/13	11/20/16
Scottsdale Healthcare – Osborn	7400 E. Osborn, Scottsdale, AZ 85251	10/25/11	10/25/14
The University of Arizona Medical Center	1501 N. Campbell Ave., Tucson, AZ 85724	11/12/11	11/12/14
West Valley Hospital (Provisional Designation)	13677 W. McDowell Road, Goodyear, AZ 85395	7/21/14	1/21/16
Level III Trauma Centers			
Banner Baywood Medical Center	6644 E. Baywood Ave., Mesa, AZ 85206	05/12/14	02/25/15
John C. Lincoln Deer Valley Hospital	19829 N. 27 th Ave., Phoenix, AZ 85027	06/09/14	4/08/17
Mountain Vista Medical Center	1301 S. Crismon Rd., Mesa, AZ 85209	7/23/14	7/26/16
Level IV Trauma Centers			
Banner Boswell Medical Center	10401 W. Thunderbird Blvd., Sun City, AZ 85351	12/17/12	12/17/15
Banner Del E. Webb Medical Center	14502 W. Meeker Blvd, Sun City West, AZ 85375	01/09/14	01/09/17
Banner Estrella Medical Center	9201 W. Thomas Road, Phoenix, AZ 85037	08/30/12	08/30/15
Banner Gateway Medical Center	1900 N. Higley Road, Gilbert, AZ 85234	01/02/13	01/02/16
Banner Ironwood Medical Center	37000 N. Gantzel Rd., San Tan Valley, AZ 85140	10/11/12	10/11/15
Banner Page Hospital	501 N. Navajo, Page, AZ 86040	11/05/11	11/05/14
Benson Hospital	450 S. Ocotillo Ave., Benson, AZ 85602	03/03/14	03/03/17
Chinle Comprehensive Health Care Facility	P.O. Drawer PH, Chinle, AZ 86503	09/09/13	09/09/16
Cobre Valley Regional Medical Center	5880 S. Hospital Dr., Globe, AZ 85501	11/26/12	11/26/15
Copper Queen Community Hospital	101 Cole Ave., Bisbee, AZ 85603	12/01/12	12/01/15
Havasupai Regional Medical Center	101 Civic Center Ln., Lake Havasu City, AZ 86403	01/20/14	01/20/17
Kingman Regional Medical Center	3269 Stockton Hill Rd., Kingman, AZ 86409	10/15/12	10/15/15

Health Care Institution	Address	Effective Date	Expiration Date
La Paz Regional Hospital	1200 W. Mohave Rd., Parker, AZ 85344	06/02/12	06/02/15
Mt. Graham Regional Medical Center	1600 S. 20 th Ave., Safford, AZ 85546	03/20/14	03/20/17
Northern Cochise Community Hospital	901 W. Rex Allen Dr., Willcox, AZ 85643	12/04/11	12/04/14
Oro Valley Hospital	1551 East Tangerine Road, Oro Valley, AZ 85755	4/18/13	4/18/16
Payson Regional Medical Center	807 S. Ponderosa Street, Payson, AZ 85541	11/22/13	11/22/16
Summit Healthcare Regional Medical Cen-	2200 Show Low Lake Rd., Show Low, AZ 85901	08/12/14	08/12/17
The University of Arizona Medical Center	2800 E. Ajo Way, Tucson, AZ 85713	08/13/13	08/13/16
Tuba City Regional Health Care Corp.	P.O. Box 600, Tuba City, AZ 86045	05/06/12	05/06/15
Verde Valley Medical Center	269 S. Candy Ln., Cottonwood, AZ 86326	08/18/11	08/18/14
White Mountain Regional Medical Center	118 S. Mountain Ave., Springerville, AZ 85938	06/18/12	06/18/15
Wickenburg Community Hospital	520 Rose Ln., Wickenburg, AZ 85390	08/08/14	08/08/17
Yavapai Regional Medical Center – West Campus	1003 Willow Creek Road, Prescott, AZ 86301	01/10/14	01/10/17
Yavapai Regional Medical Center – East	7700 E. Florentine, Prescott Valley, AZ 86314	6/24/14	6/24/17

Updated as of October 1, 2014

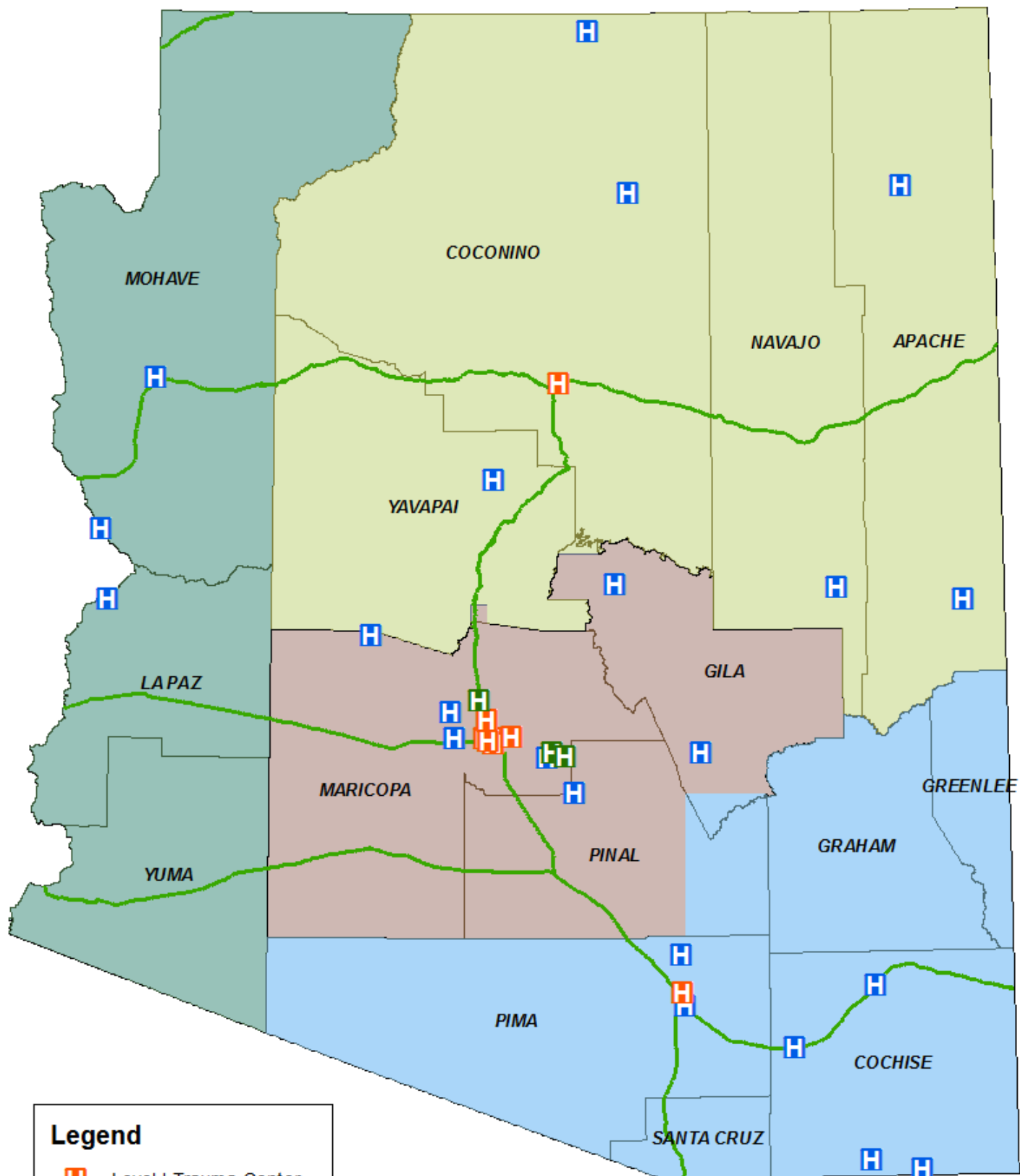


FIGURE 1: Maricopa County population by age, gender, and race/ethnicity, AZ Health & Vital Statistics

Group		Count	Percent
Age	<1	53,604	1.4%
	1-4	220,827	5.7%
	5-9	286,334	7.4%
	10-14	282,027	7.3%
	15-19	282,113	7.3%
	20-24	269,471	6.9%
	25-34	545,390	14.0%
	35-44	528,846	13.6%
	45-54	507,759	13.1%
	55-64	413,983	10.7%
	65-74	278,379	7.2%
	75-84	154,237	4.0%
	85+	61,737	1.6%
Gender	Female	1,960,411	50.5%
	Male	1,924,295	49.5%
Race/Ethnicity	Hispanic	1,142,782	29.4%
	White	2,322,166	59.8%
	American Indian/Alaska Native	81,198	2.1%
	Black/African American	194,793	5.0%
	Asian or Pacific Islander	143,768	3.7%
Total		3,884,706	100.0%

FIGURE 2: Trauma frequency and rate per 100,000 by county

County of Injury	Total Population	Percent of Population	Trauma Count	Percent of All Traumas	Trauma Rate per 100,000
Apache	72,310	1.1%	742	2.3%	1,026
Cochise	130,753	2.0%	1,127	3.5%	862
Coconino	134,313	2.1%	1,853	5.7%	1,380
Gila	53,627	0.8%	551	1.7%	1,027
Graham	37,313	0.6%	119	0.4%	319
Greenlee	8,599	0.1%	41	0.1%	477
La Paz	20,902	0.3%	156	0.5%	746
Maricopa	3,884,706	59.8%	14,873	45.6%	383
Mohave	203,072	3.1%	970	3.0%	478
Navajo	107,922	1.7%	873	2.7%	809
Pima	990,380	15.2%	4,925	15.1%	497
Pinal	389,192	6.0%	1,738	5.3%	447
Santa Cruz	48,725	0.7%	180	0.6%	369
Yavapai	211,582	3.3%	1,037	3.2%	490
Yuma	205,174	3.2%	2,062	6.3%	1,005
Other	-	-	552	1.7%	-
Total	6,498,570	100%	32,602	97.5%	502
Missing = 803					

Statewide, there were 32,602 traumatic injuries seen at state designated trauma centers– a rate of 502 per 100,000 Arizona residents.

Maricopa County makes up about 60 percent of the total population of Arizona. Injuries occurring in the county make up about 46 percent of the trauma cases from state designated trauma centers. The county-specific trauma rate, 383 per 100,000 county residents, is lower than the state average (Figure 3).

FIGURE 3: County-specific trauma rates per 100,000 residents

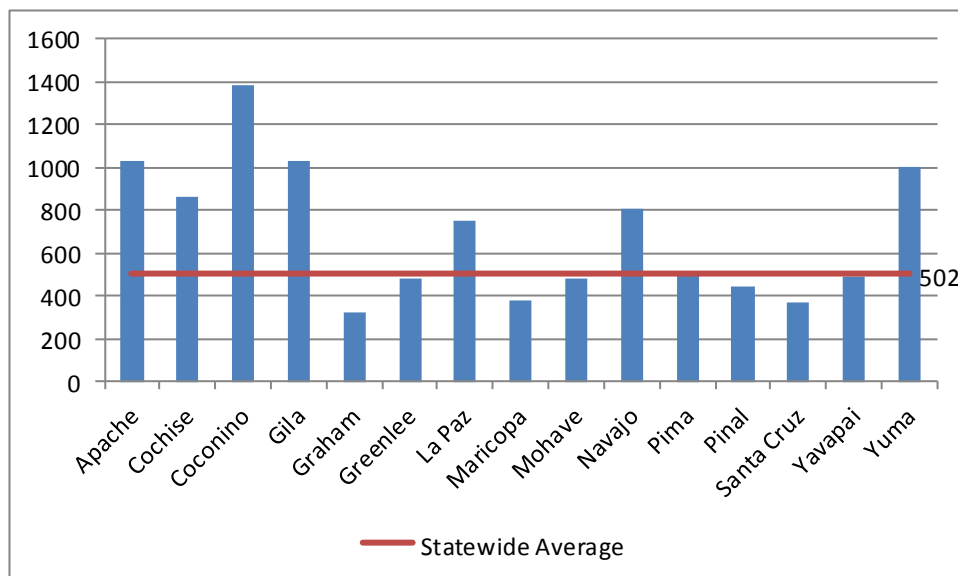


FIGURE 4: Frequency and rate of trauma by age, race/ethnicity, and gender in Maricopa County

Group		Population	Percent	Rate per 100,000
Age	<1	207	1.4%	386
	1-4	590	4.0%	267
	5-9	514	3.5%	180
	10-14	582	3.9%	206
	15-19	1,295	8.7%	459
	20-24	1,705	11.5%	633
	25-34	2,355	15.8%	432
	35-44	1,820	12.2%	344
	45-54	1,842	12.4%	363
	55-64	1,427	9.6%	345
	65-74	938	6.3%	337
	75-84	919	6.2%	596
	85+	679	4.6%	1,100
Gender	Female	5,390	36.2%	275
	Male	9,483	63.8%	493
Race/Ethnicity	Hispanic	3,864	26.0%	338
	White	8,895	59.8%	383
	American Indian/Alaska Native	552	3.7%	680
	Black/African American	941	6.3%	483
	Asian or Pacific Islander	158	1.1%	110
Total		14,873	100.0%	383

The trauma rate is lower in Maricopa County for all age groups (Figure 4), as compared to the rest of the state. The highest trauma rate is among the 85+ age group (1,100 traumatic injuries per 100,000 county residents).

FIGURE 5: Trauma rate per 100,000 residents by age

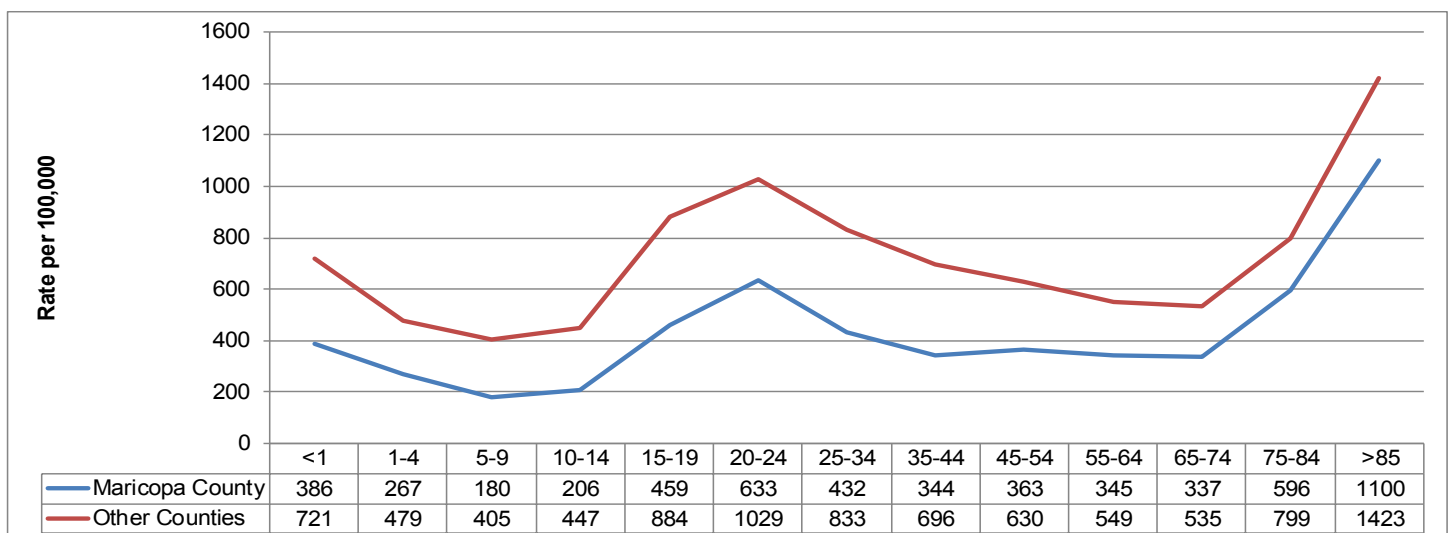
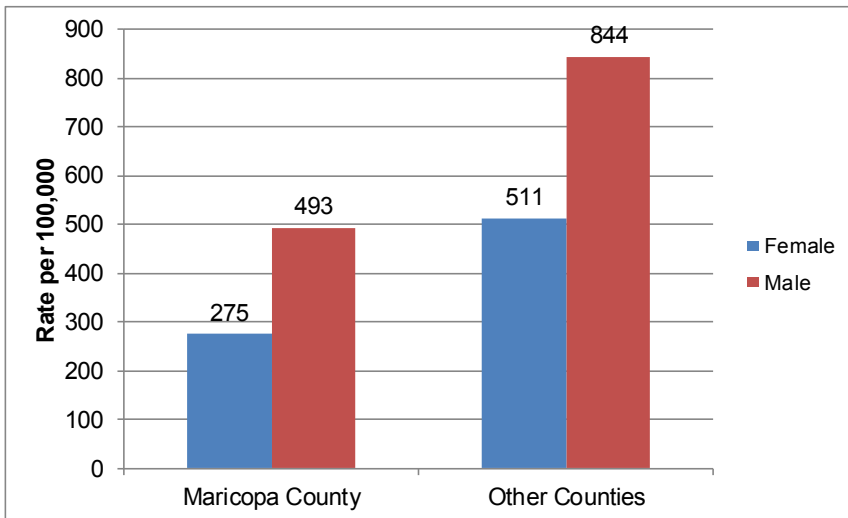
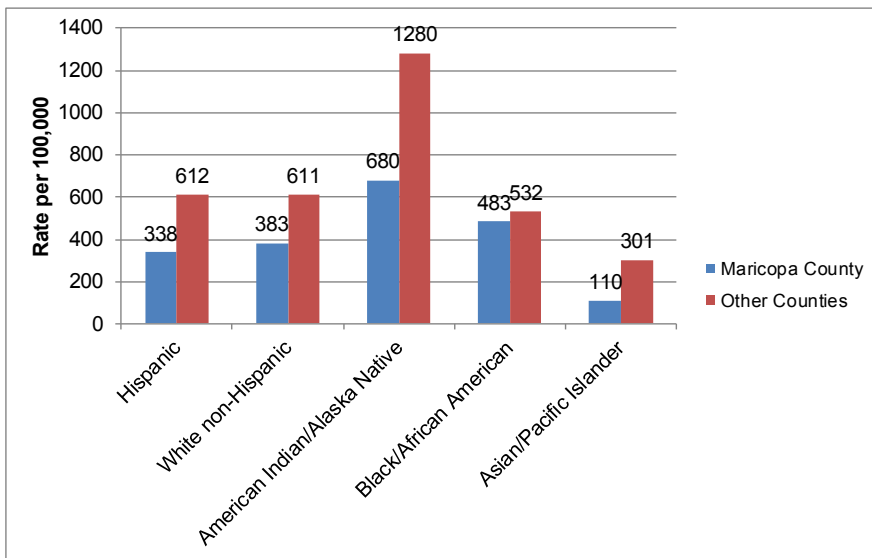


FIGURE 6: Trauma rate per 100,000 residents by gender



Both males and females in Maricopa County have lower trauma rates than their counterparts in other counties (Figure 6).

FIGURE 7: Trauma rate per 100,000 residents by race/ethnicity



The trauma rate for all race/ethnicities is lower in Maricopa County than in other counties (Figure 7).

Figure 9 shows the top causes of traumatic injury in Maricopa County, as compared with other counties (rates per 100,000).

FIGURE 8: Frequency of top causes of trauma in Maricopa County

Cause	Count	Percent
Motor Vehicle Traffic	6,049	40.7%
Falls	4,212	28.32%
Struck by/Against	1,243	8.36%
Cut/Pierce	805	5.41%
Transport, other	641	4.31%
Firearm	623	4.19%

FIGURE 9: Top causes of trauma, rates per 100,000 residents

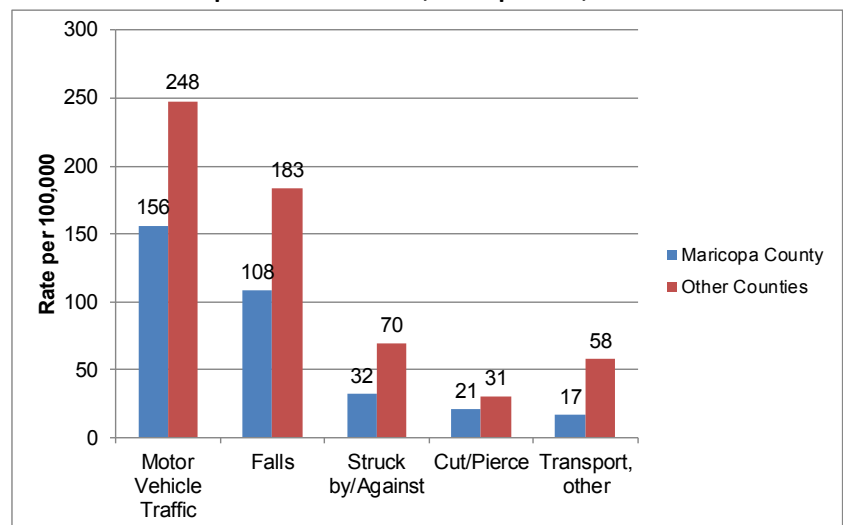
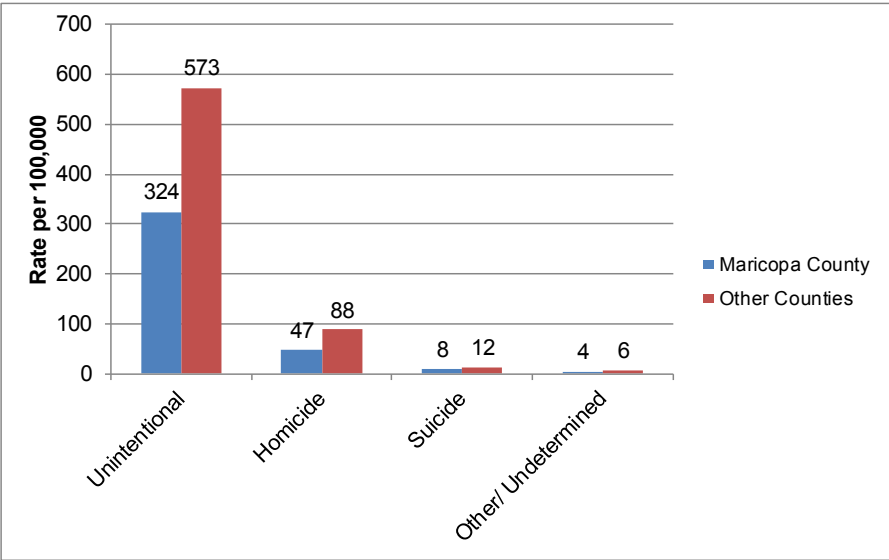


FIGURE 10: Intention of trauma, rate per 100,000 residents



The rates of all types of trauma intent are lower in Maricopa County than in other Arizona counties (Figure 10).

Documented alcohol and drug use was present in 18.3% and 15.9% of traumatic injuries in Maricopa County, respectively (Figure 11).

Alcohol and drug use is defined as any indication of use through testing or self-report, regardless of level of impairment.

FIGURE 11: Substance use in traumatic injuries in Maricopa County

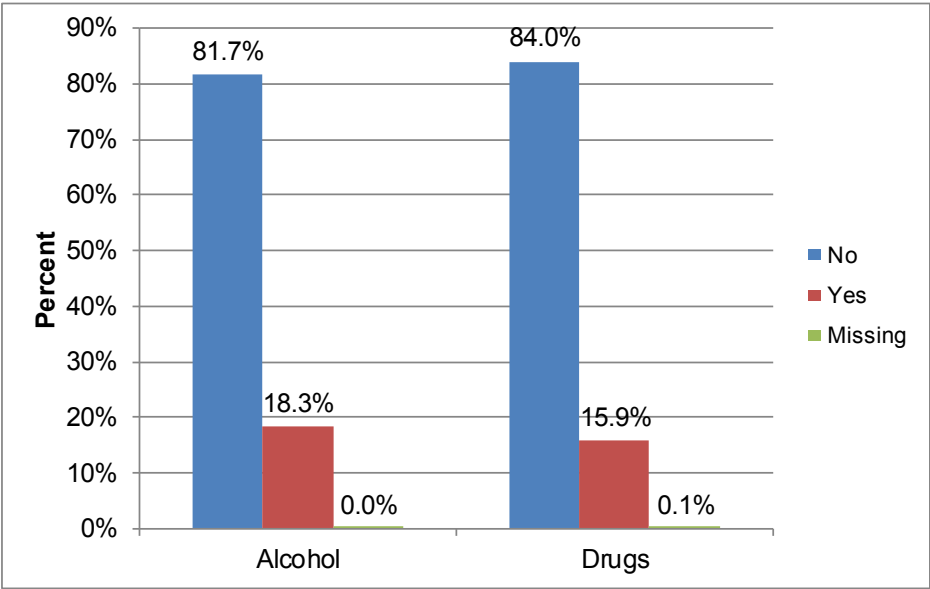


FIGURE 12: Frequency of substance use in traumatic injuries in Maricopa County

Substance Use		Frequency	Percent
Alcohol	No	12,146	81.7%
	Yes	2,725	18.3%
	Missing	2	0.0%
	Total	14,873	100%
Drugs	No	12,498	84.0%
	Yes	2,365	15.9%
	Missing	10	0.1%
	Total	14,873	100%

FIGURE 13: Proportion of ground and air ambulance transports in Maricopa County

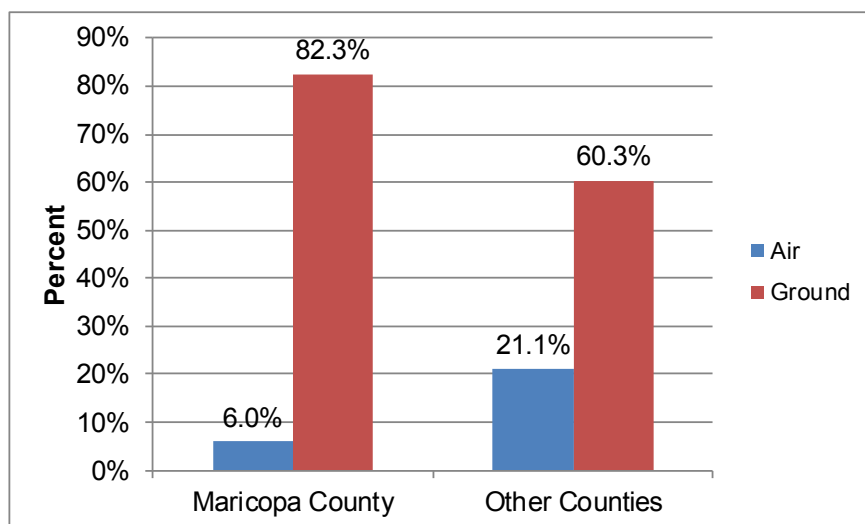


FIGURE 14: Count of ground and air ambulance transports

	Air	Ground	Other	Missing
Maricopa County	887	12,242	1,680	64
Other Counties	3,737	10,685	3,263	44

FIGURE 15: Golden hour by transport type

The term “golden hour” refers to the hour immediately following traumatic injury. Theoretically, the chance of survival is highest when medical treatment to prevent irreversible internal damage is obtained within this time period.

Due to the large amount of missing data on golden hour, results on the proportion of patients arriving at the hospital within one hour are not conclusive.

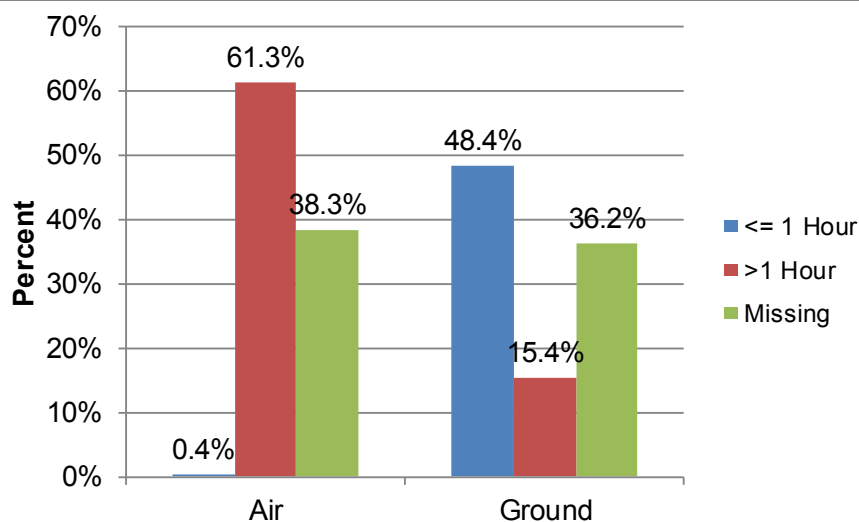
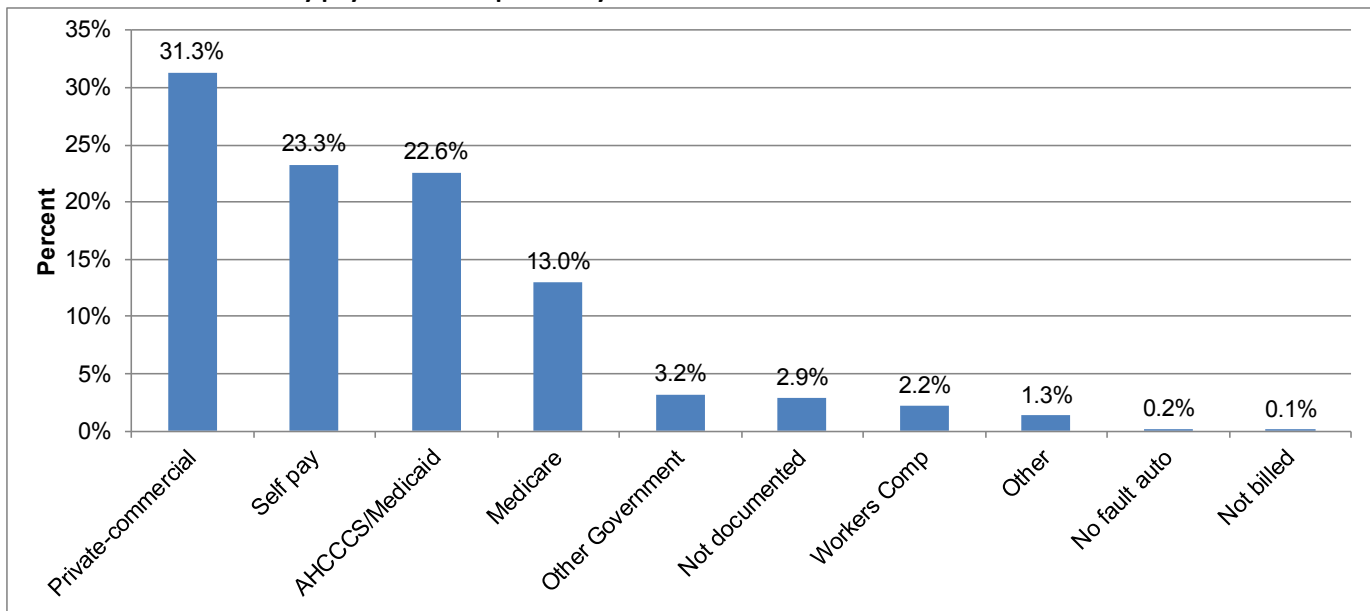


FIGURE 16: Count of golden hour by transport type to trauma center

Golden Hour	Air Ambulance		Ground Ambulance		Total	
	Count	Percent	Count	Percent	Count	Percent
≤ 1 Hour	2	0.4%	4,973	48.4%	4,975	46.2%
> 1 Hour	310	61.3%	1,582	15.4%	1,892	17.6%
Missing	194	38.3%	3,717	36.2%	3,911	36.3%
Total	506	100%	10,272	100%	10,778	100%

FIGURE 17: Primary payer in Maricopa County**FIGURE 18: Count of primary payer in Maricopa County**

Primary Payer	Frequency	Percent
Private-commercial	4,651	31.3%
Self pay	3461	23.3%
AHCCCS/Medicaid	3354	22.6%
Medicare	1936	13.0%
Other Government	478	3.2%
Not documented	427	2.9%
Workers Comp	331	2.2%
Other	198	1.3%
No fault auto	26	0.2%
Not billed	11	0.1%

Private-commercial is the primary payment source for trauma-related hospital visits in Maricopa County (Figures 17 & 18).

The median charge in Maricopa County in 2012 was \$26,934 (Figure 19).

FIGURE 19: Charges & reimbursement by primary payer in Maricopa County

Primary Payer	Total Charges	Median Charges	Total Reimbursement
Private-commercial	\$246,821,312	\$27,425	\$86,875,900
Self pay	\$166,647,208	\$26,276	\$25,879,613
AHCCCS/Medicaid	\$158,465,581	\$24,286	\$22,215,974
Medicare	\$104,928,286	\$34,320	\$20,583,707
Other Government	\$21,633,134	\$26,488	\$3,008,542
Not documented	\$2,317,241	\$20,102	\$165,540
Workers Comp	\$18,663,480	\$30,348	\$7,375,047
Other	\$11,947,900	\$28,727	\$2,399,128
No fault auto	\$2,520,742	\$26,047	\$2,182,521
Not billed	\$110,945	\$0	\$0
Total	\$734,055,828	\$26,934	\$170,685,971